

SUBSTITUTE SPECIFICATION

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SPECIFICATION

TITLE

GRADIENT COIL SYSTEM AND METHOD FOR THE PRODUCTION
THEREOF

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BACKGROUND OF THE INVENTION

Field of the Invention

The present invention concerns a gradient coil system and a method for the production of the gradient coil system.

Description of the Prior Art

Magnetic resonance technology is a known modality to, among other things, acquire images of the inside of a body of an examination subject. Rapidly-switched gradient fields that are generated by a gradient coil system are superimposed on a static basic magnetic field that is generated by a basic field magnet. The magnetic resonance apparatus also has a radio-frequency system that radiates radio-frequency signals into the examination subject to excite magnetic resonance signals and that acquires the excited magnetic resonance signals, on the basis of which magnetic resonance images are generated.

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The gradient coil system is normally formed by multiple coil layers situated one atop the other. The individual coil layers exhibit a complex geometry, are wound in one plane, are mounted atop one another together with insulation layers and are subsequently cast with the gradient coil system under vacuum with a thermosetting casting resin based on epoxy resin. For dissipation of heat, additional layers of coolant tubes or coolant pipes are inserted through which a coolant medium (for example, coolant water) flows in operation. It is also known to introduce additional layers for shim coils into the gradient coil system. In the case of an essentially hollow-cylindrical gradient coil system, the planar finished coil segments are curved into the shape of a cylinder segment and introduced into the gradient coil system. Given the

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